Before the
Federal Communications Commission
Washington, D.C. 20554

ORIGINAL

Application of SBC Communications, Inc.	)
Pursuant to Section 271 of the	)
Telecommunications Act of 1996	)
To Provide In-Region, InterLATA Services	)
in Arkansas and Missouri	)

CC Docket No. 01-194

COMMENTS OF
Z-TEL COMMUNICATIONS, INC.

Z-Tel Communications, Inc. ("Z-Tel"), by its attorneys, hereby submits its comments in response to the Federal Communication Commission's ("FCC" or "Commission") Public Notice (DA 01-1952) in the above-captioned proceeding. The Public Notice invites interested parties to respond to the Application of SBC Communications Inc., and its subsidiaries, ("SWBT") to provide in-region, interLATA services in the States of Arkansas and Missouri, pursuant to section 271 of the Communications Act of 1934, as amended ("Act").

I.   INTRODUCTION AND SUMMARY

Z-Tel is a Tampa, Florida-based competitive local exchange carrier ("CLEC") that offers bundled packages of local, long distance, and enhanced services to residential customers using the combination of unbundled network elements ("UNEs") known as the UNE Platform, or "UNE-P."[1] Z-Tel provides integrated local, long distance, and enhanced services to more than 300,000 residential consumers in 34 states. Z-Tel fully expects to provide service to thousands of additional consumers in every state in which Z-Tel has a meaningful opportunity to

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[1]   Z-Tel expressly limits its comments to SWBT's provision of UNE-P-related items utilized by Z-Tel in providing its residential service offering. Z-Tel has no experience with SWBT's provision of other offerings, such as interconnection and other UNEs.

compete. At this time, however, Z-Tel has yet to establish any significant customer base in

Arkansas or Missouri.

In these comments, Z-Tel addresses two issues.[2] To the extent the Commission

grants SWBT's Application, the Commission first should clarify certain parameters of its

TELRIC benchmark test. The Commission increasingly has relied on benchmarking UNE rates

from new section 271 applications (*e.g.*, Kansas/Oklahoma) against UNE rates in states where

section 271 authority has been granted (*e.g.*, Texas).[3] Due to the Commission's increasing

reliance on this "comparative benchmark" approach, it is critical that the Commission states

expressly what its TELRIC benchmark test is, and perhaps more importantly, is not. It is

disturbing that SWBT has reduced UNE rates at the 11th hour in Arkansas and Missouri (as it did

in Kansas and Oklahoma). After these reductions are taken into account, the recently-reduced

UNE rates in Missouri and Arkansas generally seem to meet the Commission's TELRIC Test.

Second, before finding the Application in the "public interest," the Commission

should require SWBT to modify its "statistical" treatment of benchmark measures in its

performance plan, as the evaluation of benchmarks used by SWBT has no basis in statistics. In

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[2] Although Z-Tel raised only two legal issues in this proceeding, the Commission should plainly be aware that significant co-carrier operational issues exist between Z-Tel and SWBT in Texas. For example, resolving billing disputes with SWBT has been and continues to be increasingly challenging. Two of these disputes have gone unresolved for months and are very significant: 1) SWBT is sending Z-Tel terminating call records which are not industry standard compliant – resulting in SWBT owed switched access charges of more than $2 million to Z-Tel; and 2) When an end user migrates from SWBT local service to Z-Tel local service, SWBT sometimes sends Z-Tel an invoice for that end user's residual SWBT balance. When Z-Tel doesn't pay the mis-billed invoice, SWBT often sends the Z-Tel end user disconnect notices – and has in some cases, actually disconnected the Z-Tel end user's service. Z-Tel anticipates similar billing problems in Missouri and Arkansas.

[3] *Joint Application by SBC Communications Inc., Southwestern Bell Telephone Company, and Southwestern Bell Communications Services, Inc. d/b/a Southwestern Bell Long Distance for Provision of In-Region, InterLATA Services in Kansas and Oklahoma*, CC

prior 271 Orders, the FCC has stated that Performance Assurance Plans ("PAPs") should have a

"reasonable structure that is designed to detect and sanction poor performance when it occurs."[4]

Determining whether service is "equal" or "poor" is the job of statistical tools incorporated into

the plan, and few elements of the plan are more important to the reliable and reasonable

detection of poor performance. Thus, it seems apparent that only valid "statistical" procedures

be used. Without modifying SWBT's evaluation of benchmark measures, an evaluation that

represents a most incompetent application of statistical analysis, the Commission will have no

assurance that the SWBT's performance plan will work as advertised. In fact, the failure of the

SWBT plan to reasonably detect and sanction poor performance is guaranteed. Furthermore, the

SWBT plan fails to satisfy even SWBT's own standards. SWBT claims its plan "employs

traditional statistical analysis to gauge the significance of apparent differences in performance."[5]

Yet, the evaluation of benchmark measures in the SWBT plan in is no way consistent with

"traditional statistical analysis."

Docket No. 00-217, Memorandum Opinion and Order, FCC 01-29, ¶¶ 83-86 (rel. Jan. 22, 2001) ("Kansas/Oklahoma 271 Order").

[4] *Application by Bell Atlantic New York for Authorization Under Section 271 of the Communications Act To Provide In-Region, InterLATA Service in the State of New York,* Memorandum Opinion and Order, 15 FCC Rcd 3953, ¶ 433 (1999)("New York 271 Order"), *aff'd, AT&T v. FCC,* 220 F.3d 607 (D.C. Cir. 2000).

[5] SWBT Brief in Support of Joint Application, 157.

II. CHECKLIST ITEM TWO: THE COMMISSION SHOULD CLARIFY THE PARAMETERS OF ITS TELRIC COMPARATIVE BENCHMARK TEST IN EVALUATING SWBT'S APPLICATION

The pricing prong of checklist item two requires a BOC to demonstrate that it provides UNEs in accordance with section 252(d)(1) of the Act.[6] Pursuant to section 252(d)(1), determinations by a state commission of just and reasonable rates for network elements must be "based on the cost ... of providing ... the network element ... and nondiscriminatory [] and may include a reasonable profit."[7] In the section 271 context, "a BOC must show that its prices for interconnection and unbundled network elements are based on forward-looking, long-run incremental costs" in order to demonstrate compliance with checklist item two.[8]

In determining whether a BOC's UNE pricing is consistent with TELRIC, the Commission has utilized a comparative benchmark approach (referred to in the Declaration of George S. Ford, attached hereto as Tab A, as the "TELRIC Test"). Through this approach, the Commission utilizes its Hybrid Cost Proxy Model ("HCPM" or "Synthesis Model" or "USF Cost Model") to compare UNE costs and rates across states. The operating principle of the FCC's analysis is that relative UNE rates between states should be consistent with relative cost differences, and that these relative cost differences are reasonably measured by the HCPM. As the FCC indicated:

> Our USF cost model provides a reasonable basis for comparing cost differences between states. We have previously noted that while the USF cost model should not be relied upon to set rates for UNEs, **it accurately reflects the relative cost differences among states.**[9]

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[6]   47 U.S.C. § 271(c)(2)(B)(ii).

[7]   47 U.S.C. § 252(d)(1).

[8]   New York 271 Order, ¶ 237.

[9]   Kansas/Oklahoma 271 Order, ¶ 84 (emphasis added).

When evaluating UNE rates within the context of a 271 application, the Commission employs its

USF cost model to compare UNE rates in the applicant state with rates in other states for which

the Commission has found rates to be TELRIC compliant.[10] If the difference in rates is roughly

equal to the differences in costs, then the FCC declares the rates to be TELRIC compliant (or

consistent with what a TELRIC analysis would produce).

The Commission has utilized this, "TELRIC Test" in its last two section 271

approval orders. In its Kansas/Oklahoma Order, the Commission expressed concern regarding

that the loop rate difference between Oklahoma and Texas was not cost justified:

> In taking a weighted average of loop rates in Oklahoma and Texas,
> we find that Oklahoma's rates are roughly one-third higher than
> those in Texas (ft. omitted). ... Using a weighted average of wire-
> center loop costs, the USF cost model indicates that loop costs in
> SWBT's Oklahoma study area are roughly 23 percent higher than
> loop costs in its Texas study area. We therefore attribute this
> portion of the differential, roughly two-thirds of it, to differences in
> costs. The remainder of the differential, however, is not *de
> minimus*, and we cannot ignore its presence.[11]

So long as the Applicant's UNE rate/cost relationship is no more than *de minimis* with the

rate/cost relationship in an approved state, the Commission will find that the Applicant's rates

are consistent with TELRIC.

Similarly, the Commission used this TELRIC test to evaluate whether it

was reasonable for Verizon to import to Massachusetts UNE rates utilized by Verizon in

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[10] Obviously, the TELRIC compliance of the subordinate state depends critically on the TELRIC compliance of the reference state. It is not Z-Tel's position that the UNE rates in particular reference state are TELRIC compliant. Indeed, Z-Tel continues to challenge the TELRIC compliance of rates in a number of 271 authorized states. In its brief and supporting documentation, Z-Tel simply is evaluating UNE rates using procedures developed by the Commission.

[11] Kansas/Oklahoma 271 Order, ¶ 83-5.

New York. The FCC concluded that the New York switching rates were appropriate for

Massachusetts because:

> A weighted average of Verizon's voluntarily-discounted Massachusetts rates ... and corresponding rates in New York shows that rates in Massachusetts are roughly five percent lower than those in New York. A comparison based on the USF model of costs in Verizon's study area in Massachusetts and New York for these same elements indicates that the costs in Massachusetts are roughly the same as the costs in New York.[12]

In sum, to date, the Commission has utilized the TELRIC test both to compare rates set in

different states and to determine whether it is reasonable to bring rates from one state to

another.

The attached Ford Declaration provides Z-Tel's analysis of the Arkansas and

Missouri rates. In its review of the Arkansas and Missouri rates, Z-Tel has determined that

SWBT's rates appear to satisfy many of the Commission's TELRIC Test, especially if Texas is

used as the benchmark or reference state.[13] It is important to note that, consistent with

Commission precedent, SBC must pass the TELRIC Test – because the rates have not been the

subject of a complete cost study. To the extent that the Commission approves these rates as

consistent with TELRIC for purposes of a 271 application, Z-Tel submits that the Commission

should provide guidance on the election of a benchmark state or benchmark states.[14] Moreover,

the Commission should clarify that a subsequent rate determination in a benchmark state may be

probative evidence in other states that rates no longer are consistent with TELRIC.

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[12] *Application of Verizon New England Inc., Bell Atlantic Communications, Inc. (d/b/a Verizon Long Distance), NYNEX Long Distance Company (d/b/a Verizon Enterprise Solutions) And Verizon Global Networks Inc., for Authorization to Provide In-Region, InterLATA Services in Massachusetts,* CC Docket No. 01-9, Memorandum Opinion and Order, FCC 01-130, ¶ 25 (rel. Apr. 16, 2001).

[13] Declaration of George S. Ford, ¶¶ 22, 24.

[14] *Id.,* ¶¶ 26-35.

III. PUBLIC INTEREST ANALYSIS: THE COMMISSION SHOULD REQUIRE SWBT TO MODIFY IT'S THE PARITY DEFINITION IN ITS PERFORMANCE ASSURANCE PLAN ("PAP")

As part of its public interest showing, SWBT relies on a PAP to show that it will provide adequate service.[15] In deciding whether to apply weight to any such PAP, the Commission, as part of its public interest analysis, has analyzed whether the plan is "effective in practice." As the Commission noted:

> Where, as here, a BOC relies on performance monitoring and enforcement mechanisms...we will review the mechanisms involved to ensure that they are likely to perform as promised. While the details of such mechanisms developed at the state level may vary widely, we believe that we should examine certain key aspects of these plans to determine whether they fall within a zone of reasonableness, and are likely to provide incentives that are sufficient to foster post-entry checklist compliance.[16]

In determining whether a PAP is "effective in practice," the Commission has detailed five "key aspects" of PAPs in making the public interest determination under section 271:

- potential liability that provides a meaningful and significant incentive to comply with the designated performance standards;

- clearly-articulated, pre-determined measures and standards, which encompass a comprehensive range of carrier-to-carrier performance;

- a reasonable structure that is designed to detect and sanction poor performance when it occurs;

- a self-executing mechanism that does not leave the door open unreasonably to litigation and appeal;

- and reasonable assurances that the reported data is accurate.[17]

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[15]   See SWBT Brief in Support of Joint Application, 156-160.

[16]   New York 271 Order, ¶ 433.

[17]   Id.

SWBT's Application cannot satisfy this standard because its "statistical" definition of parity is inaccurate, such that poor performance for CLECs cannot be identified.[18]

Fundamental to the PAP is SWBT's assertion that "[w]herever possible, SWBT's performance measurements compare service on behalf of ... CLECs directly to the level of service in SWBT's retail operations."[19] To do so, SWBT alleges that it "employs traditional statistical analysis to gauge the significance of apparent differences in performance."[20] In cases where service levels between an ILEC and CLECs can be compared directly, statistical analysis is a useful and valid evaluation methodology. However, in cases where service levels cannot be compared directly, such as with measures defined as benchmarks, statistics cannot be employed. Yet, SWBT proposes an entirely arbitrary "statistical" evaluation of benchmark measures that is wholly inconsistent with "traditional statistical analysis." The sham "statistical" test proposed in SWBT's PAP for benchmarks has a number of features, but none of them allow it to be characterized as a "reasonable structure that is designed to detect and sanction poor performance when it occurs." First, the sham "statistical test" defies, without question, accepted statistical principles. Second, the sham test reduces arbitrarily every benchmark standard by either 1.65 units or percentage points.[21] Third, and most troubling, the bogus "statistical" test allows numerous actual cases of poor performance to go unsanctioned:

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[18] *See* Declaration of George S. Ford, ¶¶ 44-55. In particular, because of its incorrect use of statistical tools, the PAP in no way constitutes a "reasonable structure."

[19] SWBT Brief in Support of Joint Application, 157.

[20] *Id.*

[21] Assume the benchmark is 99% orders completed in 24 hours. The SWBT plan reduces that benchmark to 0.9735 in 24 hours and does so without any statistical reason to do so.

The most troubling aspect of the arbitrary "statistical" manipulation of benchmark measures is not that it arbitrarily reduces every benchmark by 1.65 (or 0.0165 for percent measures), but that these measures, usually 40-50% of total measures, are then used in the count for K-Table exclusions. The K-Table is intended to credit SBC for Type I error, and the number of failed tests SBC is allowed each month depends on the number of statistical tests performed. ... By including benchmark measures in the count of K-Table relevant measures, unsanctioned occurrences for poor performance are increased by about 60% (assuming 40% of measures are benchmarks).[22]

By inflating the number of statistical tests performed each month by defining benchmarks as "statistical tests," SWBT increases the number of K-Table exclusions (*i.e.*, detected poor performance that goes unsanctioned) by a non-trivial number. Any K-Table exclusion based on the number of benchmark measures populated in a month has absolutely no justification on statistical grounds.

Given the inherent flaws of SWBT's evaluation of benchmark measures, there can be no doubt that SWBT's PAP lacks a "reasonable structure that is designed to detect and sanction poor performance when it occurs." Indeed, given the sham test's impact on K-Table exclusions, the failure to sanction detected poor performance is guaranteed. As such, the Commission should reject this non-statistical evaluation of benchmark measures, and require SWBT to modify its PAP to evaluate all benchmark measures on a "stare-and-compare" basis and to exclude all benchmark measures from affecting the number of K-Table exclusions.
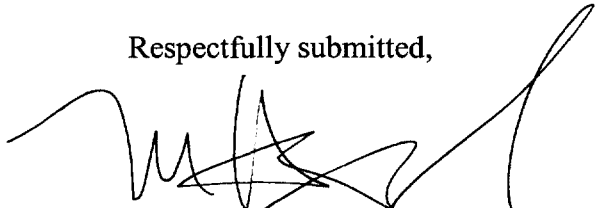
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[22] Declaration of George S. Ford, ¶¶ 52-53. K-Table exclusions that are the result of including benchmark measures in the total measure count cannot be attributed to random variation (or Type I error).

IV.   CONCLUSION

Consistent with the foregoing, the Commission should require SWBT to modify

its Application.

Respectfully submitted,

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COUNSEL TO Z-TEL COMMUNICATIONS, INC.

Dated: September 10, 2001

Application of SBC Communications, Inc.	)	
Pursuant to Section 271 of the	)	
Telecommunications Act of 1996	)	CC Docket No. 01-194
To Provide In-Region, InterLATA Services	)	
in Arkansas and Missouri	)	

**DECLARATION OF GEORGE S. FORD
ON BEHALF OF
Z-TEL COMMUNICATIONS, INC.**

I, George S. Ford, of legal age, declare as follows:

I. Qualifications

1. My name is George Ford. My business address is 601 South Harbour Island Boulevard, Tampa, Florida 33602. I am the Chief Economist of Z-Tel Communications, a CLEC that offers competitive local and long distance exchange services to residential consumers in more than thirty states.

2. In 1994, I received a Ph.D. in Economics from Auburn University where my graduate work focused on the economics of industrial organization and regulation with course work emphasizing applied price theory and statistics. In that same year, I became an Industry Economist at the Federal Communications Commission in the Competition Division of the Office of the General Counsel. The Competition Division of the FCC was tasked with ensuring that FCC policies were consistent with the goals of promoting competition and deregulation across the communications industries. In 1996, I left the FCC to become a Senior Economist at MCI Worldcom where I was employed for nearly four years. While at MCI Worldcom, I filed declarations at both federal and state regulatory agencies and performed economic studies on a variety of topics. I have maintained an active research agenda on communications issues and have published research papers in a number of academic journals *Journal of Law and Economics*, the *Journal of Regulatory Economics*, the *Review of Industrial Organization*, among others. I am a contributing author to the *International Handbook on Telecommunications Economics*. I regularly speak at conferences, both at home and abroad, on the economics of telecommunications markets and regulation.

II. Purpose

3.   The purpose of this statement is to evaluate the UNE rates in Missouri and Arkansas using the methodology set forth by the Federal Communications Commission ("FCC") in its Oklahoma-Kansas and Massachusetts 271 Orders. This methodology, which might be called the "TELRIC Test", evaluates the TELRIC compliance of UNE rates by comparing the relative costs of providing service across states. Given its prior use in earlier 271 proceedings, the FCC's TELRIC Test is a reasonable tool by which to evaluate whether the UNE rates in Arkansas and Missouri are TELRIC compliant. The use of the TELRIC Test is particularly applicable in the instant proceeding because the rates in neither Arkansas nor Missouri are fully based on a TELRIC cost study. My analysis indicates that the UNE rates in both states for loops, end-office switching, and transport generally pass the FCC's TELRIC Test, but only if Texas is used as the reference state. While the transport rates (transport plus tandem switching) in Missouri do not pass the TELRIC test *per se*, the reduction in those rates required to bring them into compliance is relatively small (a 2% reduction).

4.   I would note that the rates SBC has submitted that I analyze here have not been the subject of a complete TELRIC cost analysis before either the Missouri or Arkansas state commissions. In particular, SBC's application states that it has recently filed the Missouri rates before the state commission and that the rates used for Arkansas are, in fact, directly derived from its Kansas rates.[1] Because it cannot rely upon the results of a complete state commission cost proceeding, under FCC precedent, the "TELRIC Test" is the **only** means in which the Commission can assure itself that the rates in these two states meet the pricing standards of the Act and Commission rules.

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[1]   *See* SBC Brief in Support at 19-23 (relying on "presumption" portion of TELRIC test regarding AR rates). Regarding Missouri rates, SBC explicitly states that its application relies on rates "that have not yet been reviewed by the Missouri PSC" and that have instead been set at rates derived in Texas. SBC states that many of the UNE rates on which it bases its application contain an arbitrary, 25% reduction in nonrecurring charges, except where that reduction would cause the rate to fall below the Texas rate. SBC Brief in Support at 24-25. SBC also "voluntarily" reduced other element rates – including a 95% reduction in nonrecurring charge for an analog switch port – in anticipation of this FCC filing. Brief in Support at 47-48. As a result, SBC must clearly rely on a TELRIC Test type of analysis, in which Arkansas and Missouri rates are benchmarked and compared to other states, in order for this application to pass muster.

5. In addition to my own analysis of UNE rates in Missouri and Arkansas, I provide a brief review of the analyses of UNE rates contained in the affidavits of Dale A. Lundy and Thomas F. Hughes on behalf of Southwestern Bell ("SBC").[2]

6. Lastly, a critique of an integral component of the SBC Performance Plan is provided. The treatment of benchmark measures in the SBC Plan is meritless and violates the most basic of statistical principles. Statistical testing is an important and integral part of the performance plans; it follows that only valid statistical procedures should be used. SBC has asked for the Commission to rely on its plan as part of its "public interest" analysis of this proceeding. Any reliance on a plan with arbitrary and invalid statistical procedures is not justifiable and any such reliance would subject a Commission order to significant risk on appeal. Prior to granting 271 approval for Missouri and Arkansas, the FCC should require SBC to remove the "statistical" (using the term extremely loosely) treatment of benchmarks that has no statistical basis or validity. The FCC's failure to eliminate this error from the plans in earlier 271 proceedings does not justify the continued use of the ridiculous procedure proposed by SBC in this proceeding. The FCC has sufficient influence, particularly in the context of the instant proceeding, to remedy this problem.

III. The TELRIC Test for Arkansas and Missouri

The Commission's Use of the TELRIC Test.

7. The pricing prong of checklist item two requires a BOC to demonstrate that it provides UNEs in accordance with section 252(d)(1) of the Act.[3] For section 271 purposes, a BOC must show that its prices for interconnection and unbundled network elements are based on forward-looking, long-run incremental costs. In determining whether a BOCs UNE rates satisfy this standard, the FCC utilizes its Hybrid Cost Proxy Model ("HCPM" or "Synthesis Model" or "USF Cost Model") to compare UNE costs and rates across states. The operating principle of the FCC's analysis is that relative UNE rates between states should be consistent with relative cost differences, and that these relative cost differences are reasonably measured by the HCPM. As the FCC indicated:

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[2] *See* Affidavit of Dale A. Lundy for Arkansas on Behalf of Southwestern Bell ("Lundy Affidavit"); *see* Affidavit of Thomas f. Hughes in Missouri in Missouri on Behalf of Southwestern Bell ("Hughes Affidavit").

[3] 47 U.S.C. § 271(c)(2)(B)(ii).

> Our USF cost model provides a reasonable basis for comparing cost differences between states. We have previously noted that while the USF cost model should not be relied upon to set rates for UNEs, <u>it accurately reflects the relative cost differences among states.</u>[4]

When evaluating UNE rates within the context of a 271 application, the Commission employs its USF cost model to compare UNE rates in the applicant state with rates in other states for which the Commission has found rates to be TELRIC compliant. If the difference in rates is roughly equal to the differences in costs, then the FCC declares the rates to be TELRIC compliant (or consistent with what a TELRIC analysis would produce).

8. For example, the Commission applied its "TELRIC Test" in the orders approving 271 applications in Oklahoma/Kansas and Massachusetts. In Oklahoma, the FCC evaluated the UNE loop rate, whereas in Massachusetts the loop and switching UNE rates were scrutinized with the TELRIC Test. For Oklahoma, the FCC expressed concern that the loop rate difference between Oklahoma and Texas was not cost justified:

> In taking a weighted average of loop rates in Oklahoma and Texas, we find that Oklahoma's rates are roughly one-third higher than those in Texas (ft. omitted). ... Using a weighted average of wire-center loop costs, the USF cost model indicates that loop costs in SWBT's Oklahoma study area are roughly 23 percent higher than loop costs in its Texas study area (ft. omitted). We therefore attribute this portion of the differential, roughly two-thirds of it, to differences in costs. The remainder of the differential, however, is not *de minimus*, and we cannot ignore its presence. [5]

In this statement, the FCC expresses concern that the difference in loop rates is not cost justified, where costs are measured with the HCPM.

9. During the 271-review process, SBC reduced its loop rates in Oklahoma. (As discussed above, SBC has engaged in a similar, 11th-hour reduction in this proceeding.) With respect to the reduced loop rates in Oklahoma, the FCC concluded:

> The weighted average of the Oklahoma discounted loop rates is roughly 11 percent higher than the weighted average of the loop rates in Texas. This differential between Oklahoma promotional and Texas rates is well within

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[4]   FCC KS-OK 271 Order, ¶ 84 (emphasis added).

[5]   FCC KS-OK 271 Order, ¶ 83-5.

the 23 percent differential suggested by the USF cost model, and so we conclude that the discounted rates meet the requirements of the Act.[6]

After the voluntary rate reduction in the Oklahoma loop rate, the 11% rate difference was below the 23% cost difference estimated by the HCPM. As a consequence, the FCC deemed the loop rate TELRIC compliant.

10. During the review of the Massachusetts 271 application, Verizon "voluntarily" reduced its switching rates during the Massachusetts 271 proceeding to a level consistent with that of New York. The FCC concluded that the New York switching rates were appropriate for Massachusetts because:

> [a] weighted average of Verizon's voluntarily-discounted Massachusetts rates ... and corresponding rates in New York shows that rates in Massachusetts are roughly five percent lower than those in New York. A comparison based on the USF model of costs in Verizon's study area in Massachusetts and New York for these same elements indicates that the costs in Massachusetts are roughly the same as the costs in New York.[7]

Again, the relative cost difference as measured by the HCPM was used to evaluate the relative rate differences across states.

11. Similarly, in this application, neither the Arkansas nor Missouri rates submitted by SBC to the Commission have been subject to a complete TELRIC cost proceeding. As a result, strict adherence to the TELRIC Test is the **only** means consistent with Commission precedent to review these rates in this proceeding.

The TELRIC Test Methodology.

12. Using the language from the FCC's 271 Orders, the TELRIC Test can be defined more formally as follows. Let the cost for an unbundled element in the subordinate or applicant state i be C_i and in some reference state be C_R. Further, let the TELRIC loop costs determined by the state commissions be P_i and P_R, respectively. While the HCPM is used to produce values for C_i and C_R, the FCC stated that the estimates from the HCPM do not equal necessarily the absolute level of TELRIC costs, i.e., $P_i \neq C_i$ and $P_R \neq C_R$. However, the agency does contend

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6   FCC KS-OK 271 Order, ¶ 86.

7   FCC Massachusetts 271 Order, ¶ 25.

that the HCPM's output accurately reflects the relative cost differences among states. Thus, the TELRIC Test is defined as

$$\frac{P_i}{P_R} \le \frac{C_i}{C_R},$$ (1)

a condition which simply indicates that the ratio of UNE rates must be (approximately) equal to or less than the ratio of HCPM costs. Though not indicated in Equation (1), it is possible to pass the TELRIC Test if the ratio of prices is only marginally higher than the ratio of costs. As the FCC noted in the Oklahoma-Kansas 271 Order, it was disturbed by the fact an 8% reduction [1 – 1.23/1.33] in the Oklahoma loop rate was required to satisfy the TELRIC test and this reduction was "not de minimis." It is possible, however, that a smaller difference would not render a UNE rate out of compliance. Thus, at a minimum, any difference requiring and 8% or larger reduction in the UNE rate to satisfy the TELRIC Test must be a meaningful difference requiring further scrutiny. The actual level of "de minimis" is probably lower than what an 8% reduction would remedy, but to date the FCC has offered no further information as what is the "de minimis" difference. It may be the case that the *de minimis* standard is best determined on a case-by-case basis, because a number of factors may be relevant to its determination.

13. To illustrate the application of Equation (1), consider the Oklahoma and Texas loop comparison. Prior to the arbitrary reduction in Oklahoma loop rate, the FCC determined that the UNE rates in Oklahoma were "roughly one-third higher than those in Texas," implying that P_i/P_R is 1.33. The HCPM indicated, however, that loop costs are only "23 percent higher than loop costs" in Texas, implying that C_i/C_R is 1.23. Obviously, 1.33 is not less than or equal to 1.23, leading the FCC to express concern over the initial Oklahoma loop rate. Once the Oklahoma loop rate was reduced, the ratio of prices was only 1.11, which is below the cost ratio of 1.23. Thus, the reduced Oklahoma loop rate passed the TELRIC Test.

Data

14. Table 1 summarizes the HCPM Cost estimates and UNE rates for Texas, Oklahoma, Kansas, Arkansas, and Missouri. Texas, Oklahoma, and Kansas are all SBC states that have received 271 authority. A weighted average of the rates and costs for these three states also is provided in the table (Wgt. Avg.). Arkansas and Missouri are, of course, the applicant states.

Table 1. Summary of Costs and Prices for Unbundled Elements						
	TX	OK	KS	Wgt. Avg.	AR	MO
Loop						
HCPM	$16.39	$20.30	$18.52	$17.13	$19.06	$22.72
UNE Rate	$14.10	$15.71	$13.30	$14.22	$15.18	$13.90
End-Office Switching						
HCPM	$2.18	$2.21	$2.32	$2.20	$2.51	$2.10
UNE Rate	$4.09	$5.25	$3.23	$4.15	$4.17	$2.99
Transport (incl. Tandem Switching)						
HCPM	$0.30	$0.62	$0.55	$0.37	$0.40	$0.46
UNE Rate	$0.19	$0.28	$0.16	$0.20	$0.26	$0.12

Once again, all of SBC's UNE rates have not been the subject of a complete TELRIC cost case in either Arkansas or Missouri.

15. Estimates and rates for loops, end-office switching (port and usage), and transport are provided. HCPM estimates are computed using the wire center output files of the HCPM (available for download at the FCC website). The HCPM cost numbers in the table are based on weighted averages of the HCPM estimates, and in some cases usage data from the HCPM.[8] For exposition purposes (only), all the cost estimates have been adjusted downward by the uncollectibles factor.[9] Also, loop rates are adjusted downward to account for the HCPM's allocation of all overhead to the loop. The loop rates in Table 1 include only overhead correctly attributed to the loop.[10]

16. For end-office switching, the port charge is added to the end-office usage costs to create a per-line monthly costs for end-office switching. Monthly usage costs are computed by multiplying the usage rate by the number of local switched minutes as defined in the HCPM. The HCPM also provides a summary of transport costs, and that value is provided in the table. Transport costs in the HCPM include direct transport and transmission, common transport and transmission, and tandem switching cost elements. For convenience, all the

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[8]   Total switched access lines are used as weights.

[9]   Because the uncollectible factor applies to all HCPM estimates in the table, the factor will cancel out when the TELRIC Test is performed. Therefore, whether or not this adjustment is made has no impact on the results of the TELRIC test. Nevertheless, I felt it appropriate to adjust the absolute levels by the uncollectible factor for presentation purposes in Table 1.

[10]   The adjustment to overhead is identical to the method employed in the Oklahoma/Kansas and Massachusetts 271 orders.

relevant calculations to produce the cost estimates in Table 1 can be downloaded for instruction, replication, and verification. [11]

17. The UNE rates in Table 1 are based on the UNE rates submitted by SBC in each of the respective states. UNE rates typically are deaveraged across three or four zones, and the averages in Table 1 are weighted averages based on the distribution of lines across density zones or other relevant zone weightings.[12] For end-office switching, a monthly per-line UNE revenue estimate is produced by multiplying the UNE usage rate by the level of local traffic and then adding the UNE port rate. Local traffic is equal to the level used for the HCPM estimate of monthly usage costs. Similarly, transport UNE revenue per line per month is computed as the relevant rate multiplied by direct transport minutes, common transport minutes, and tandem switched minutes as recorded in the HCPM.

18. Table 1 contains summary rate and cost information for three categories of UNEs, only one of which combines two separate elements (transport). For end-office switching, the Commission's UNE rate structure rule, 47 CFR 51.509(b), permits incumbent LECs to recover those charges "through a combination of a flat-rated charge for line ports and one or more flat-rated or per-minute usage charges for the switching matrix and for trunk ports." Although unbundled end-office switching is more appropriately priced with a flat per-month charge for all components (as SBC does in Illinois), for this analysis I have combined the flat-rated and per-minute components into one charge, as both components collectively should recover the cost of providing unbundled local switching. By combining the per-port and per-minute elements, different allocations of the switching investment between the port and usage should not influence the TELRIC Test.

19. Generally, for purposes of the TELRIC Test, elements should not be combined. In particular, each individual UNE price must, according to law, be based on the forward-looking cost of providing that element. It would violate that legal principle to somewhat "offset" high costs for one UNE by referencing lower costs for another UNE. In addition, Commission rule 51.506(d)(4) explicitly prohibits the costs of a UNE from subsidizing other elements or services. Finally, in comparison to another state, the cost of one element in one state may be significantly lower or higher than cost differential of another

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[11] Backup calculations for the HCPM estimates can be downloaded from www.egroupassociates.com.

[12] Tandem switching rates have both a per-minute and per-mile component. A ten-mile distance is assumed for tandem traffic across all states.

element.[13] As a result, the TELRIC Test is of limited utility when it is used to analyze combinations of elements.

20. However, for my analysis, I followed the HCPM's reporting structure and left combined the direct and common transport/transmission and tandem switching components. The HCPM reports (in summary fashion) the elements in combination as "Transport."[14] The decision to combine these two elements was due in part because the costs of these elements are determined jointly within the same module of the HCPM. The transport module is distinct from both the end-office switching and loop modules. Further, tandem switching is a component of common transport.

21. I do not recommend that the Commission combine end-office switching, transport and tandem switching rates. Adding transport and end-office switching could mask large, non-cost based rate discrepancies for the transport elements.[15] Thus, combining these elements for purposes of the TELRIC Test should be avoided to maintain the integrity of the test, avoiding the possibility of masking transport and tandem switching rates that are substantially in excess of costs. The size difference in the rates also may mask cross-subsidization between switching and transport elements.[16] As discussed above, cross subsidization is in direct violation of the pricing rules (specifically, 51.505(d)(4)). In order to avoid masking above costs or subsidized UNE rates, switching and transport elements should not be combined. In fact, the potential consequences of aggregating elements should be considered whenever elements are combined.

Results

22. Table 2 summarizes the TELRIC Test for Arkansas. In the first column under each state is the ratio of prices; the ratio of costs is provided in the second

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[13] For example, it is easy to envision a situation in which loop costs may be significantly lower in one state than another while switching costs are relatively equal. Using the TELRIC Test to "combine" analysis of the loop-switching "combination" would permit the BOC to gouge its CLEC customers on unbundled switching. The same situation is possible any time the TELRIC Test is used to analyze a combination of any two elements.

[14] It is possible to separate these two elements into unique categories.

[15] In contrast, tandem switching and transport costs are similarly sized so that masking is much less of an issue.

[16] With tandem switching and transport, it is likely that the subsidized and subsidizing elements are consumed jointly. However, transport and tandem switching can be purchased independently of end-office switching.

column. If the first column is equal to or less than the second column, then the TELRIC Test is passed. Pass or fail is indicated in the third column. If the first column is greater than the second column, then the UNE rate must be reduced to satisfy the TELRIC Test. The minimum required reduction (in percentage) is computed as $[1 - (C_i/C_R)/(P_i/P_R)]$. An asterisk (*) next to "Fail" indicates that the reduction in UNE rates required to pass the TELRIC Test is fairly small (less than 4% in every case) and potentially *de minimis*.

Table 2. The TELRIC Test for Arkansas

	TX			OK		
	P_i/P_R	C_i/C_R	Pass/Fail	P_i/P_R	C_i/C_R	Pass/Fail
Loop	0.99	1.39	Pass	0.88	1.12	Pass
End-Office Switching	0.73	0.96	Pass	0.57	0.95	Pass
Transport	0.65	1.53	Pass	0.43	0.74	Pass
	KS			Wgt. Avg		
	P_i/P_R	C_i/C_R	Pass/Fail	P_i/P_R	C_i/C_R	Pass/Fail
Loop	1.05	1.23	Pass	0.98	1.33	Pass
End-Office Switching	0.93	0.91	Fail*	0.72	0.95	Pass
Transport	0.77	0.84	Pass	0.62	1.24	Pass
* Indicates a potentially *de minimis* difference in rates.						

23. As shown in the table, the Arkansas UNE rates for loops, end-office switching, and transport are TELRIC compliant if Texas, Oklahoma, or the "weighted average" state is the reference. If Kansas is the reference state, only the end-office switching rate in Arkansas is problematic. Note that this particular failure is remedied by a 2% reduction in the end-office switching rate, which might qualify as *de minimis*. Thus, for the purposes of this 271 proceeding, the Arkansas UNE rates for these particular elements appear to pass the TELRIC Test for most (and perhaps all) potential reference states listed here.

Table 3. The TELRIC Test for Missouri

	TX			OK		
	P_i/P_R	C_i/C_R	Pass/Fail	P_i/P_R	C_i/C_R	Pass/Fail
Loop	1.08	1.16	Pass	0.97	0.94	Fail*
End-Office Switching	1.02	1.15	Pass	0.79	1.13	Pass
Transport	1.36	1.31	Fail*	0.91	0.63	Fail
	KS			Wgt. Avg		
	P_i/P_R	C_i/C_R	Pass/Fail	P_i/P_R	C_i/C_R	Pass/Fail
Loop	1.14	1.03	Pass	1.07	1.11	Pass
End-Office Switching	1.29	1.08	Fail	1.00	1.14	Pass
Transport	1.62	0.72	Fail	1.30	1.07	Fail
* Indicates a potentially *de minimis* difference in rates.						

24. Despite SBC's various, arbitrary efforts to reduce its Missouri UNE charges, SBC's changes do not go far enough, as shown by Table 3. The Missouri UNE rates fail the TELRIC test for all potential reference states listed here (Texas,

Oklahoma, Kansas, and the weighted average state). Note, however, that if the Missouri transport rate is reduced by (an effective) 3.6%, the Missouri UNE rates pass the TELRIC Test with Texas as the reference state. The UNE rates in Missouri are not close to passing the TELRIC Test for any of the other (non Texas) reference states.

25. The problems mentioned earlier with combining the TELRIC Test analysis of transport with end-office switching can be illustrated with the Missouri-Oklahoma comparison. Missouri's switching rates pass the TELRIC Test easily using reference state Oklahoma, with a price ratio of 0.79 and a cost ratio of 1.13. Transport rates, however, fail the TELRIC test with a price ratio of 0.91 and a cost ratio of 0.63. If end-office and transport are combined, the price ratio is 0.80 and the cost ratio is 1.02 – a clear pass. Thus, combining the elements in a TELRIC Test analysis would mask a 30% overstatement of transport costs in Missouri. In fact, SBC could increase the transport rates by nearly **six times their current levels** without failing the TELRIC Test.[17] In other words, a ratio of transport prices as high as 5.75 is allowed if the end-office and switching elements are combined, despite a cost ratio of only 0.63 for transport elements. Clearly, combining transport and switching in a TELRIC Test analysis is unwise would not prevent a BOC from charging rates that are far in excess of TELRIC.

Choice of Reference State

26. Tables 2 and 3 illustrate the fact that the choice of reference state is an important decision when applying the TELRIC Test. The fact that Texas served as the reference state for all SBC 271 approved states suggests it is a reasonable reference for the current applications, but this observation does not imply necessarily that it is unwise to include other states in some sort of weighted-average reference state or adopt an entirely new reference state. Indeed, relying on a single state as the reference state places a heavy reliance on that state's commission and is consequently a risky strategy for the Commission to undertake. A poor decision from that state (either prior to or subsequent to 271 entry) could taint the TELRIC Test approach to rate review.[18]

27. I would note that this risk cuts both ways – both BOCs and CLECs alike would face the risk of an unreasonable or poor decision by a reference state.

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[17] The TELRIC Test is passed even if the transport rates in Missouri are increased by a factor of 5.75 (or if the Missouri rates were 475% higher than they are now).

[18] As long as nothing prohibits changing the reference state at some later date, the risk associated with bad decisions is rather trivial.

28. As the TELRIC Test is employed with increasingly frequency, using the initial reference states (i.e., Texas and New York) is not significantly different than using multiple reference states. If all subsequent states pass the TELRIC Test based on these original reference states, then passing the TELRIC Test on any subordinate state is likely (absent dramatically lower rates in a subordinate state that is used as the reference state).

29. The risk of a single and fixed reference state is offset somewhat by using a weighted average of 271 approved states. A weighted average approach also includes more information than the single state approach. With a weighted average, the larger states will contribute more to the reference state. This result is not undesirable because the larger states are generally better equipped to evaluate the complex cost models and do so with more frequency.

30. While a weighted average of approved states may be desirable in some respects, it is true that as additional states are added to the weighted average reference state the reference point becomes a moving target. Thus, the compliance of rates in extant 271 states may become questionable as additional states are added. As observed in New York and Massachusetts, large changes in UNE rates in the reference states can occur soon after an approval of an applicant/subordinate state. If TELRIC compliance is based on the TELRIC Test, then the rates in the subordinate state should mimic those of the reference state – even after 271 approval. Thus, having a single reference state may simplify the administration of rates in the reference states and their subordinates.

31. A potentially promising alternative to selecting either a single reference state or a weighted average would be to adopt a "best practices" reference state. In the context of a formal cost proceeding, a large number of UNE rates are established. It is not possible to scrutinize fully every single rate. Some states, however, may evaluate particular elements more closely than others due to the CLEC business plans in that particular state. The rates for those particular elements in that state would be the "best practice" UNE rates. For example, loop rates might have been analyzed extensively or litigated in one state, which would indicate that for loops that state would be a suitable loop-rate reference state. Another state may have done an exceptional job setting switching rates or non-recurring charges, so that particular state would be the switching or non-recurring charges reference state.[19] Additionally, a state with a recent cost proceeding, such as New York,

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[19]   For many non-recurring charges, the rate is simply the time-to-complete a task multiplied by the wage rate. Because the time-to-complete should not vary substantially across states, the TELRIC Test can be performed by replacing the HCPM cost ratio by the ratio of wage rates (as determined from publicly-available or audited sources).

may serve as a better reference state for some or all elements than states with dated rates. A state with a peculiar rate structure may be a better reference state for an applicant state that has a similar rate structure.

32. A "best practices" approach would best leverage the tools and talents of state commissions across the country. In general, BOCs tend to file the same cost study or analysis in each of their states. Rather than have every state attempt the often-impossible task of devoting all of their resources to the entire study, states would have the incentive to be able to develop expertise in certain elements or areas of the study. A best-practices TELRIC Test as a back-stop would give even small states the flexibility to focus their efforts and attention on particular UNEs, as those states would be confident that the best-practices TELRIC Test would be utilized to ensure that the *other* UNEs would be TELRIC-compliant.

33. The "best practices" reference state approach also gives the FCC flexibility in applying the TELRIC Test, as it provides perhaps the most legitimate of the reference-state options discussed in this document. A "best practices" approach would provide the FCC the confidence that *all* elements are TELRIC-compliant. With this inherent flexibility, the FCC can best pair applicant/subordinate states to a reference state and ensure that the UNE rates are up-to-date. Flexibility is also important because cost proceedings are complicated endeavors, and the results are an interesting mix of facts, opinions, and politics. Consequently, some flexibility in choosing the components of the reference state is desirable.

34. Arguments by BOCs that reference states be geographically proximate or share a common BOC should be rejected. While the Commission has in past 271 orders noted its preference for reference states that are geographically proximate and have a common BOC, those requirements are unnecessary and have no material impact on the validity of the TELRIC Test. The HCPM is designed to fully account for geographic differences across states. If, as the FCC contends, the HCPM reliably detects cost differences across states, then it must do across any potential pair of states regardless of geographic proximity, teledensity, or other factors. If not, then the HCPM does not properly account for these relevant factors and consequently cannot be relied upon to measure differences in rates across any pair of states.

35. Different BOC heritage (or different rate structures) is unproblematic for most UNEs. Loops are defined in a sufficiently homogeneous manner across BOCs so that direct comparisons are legitimate. Using publicly available usage and ARMIS data, different rate structures can be normalized for comparison purposes. For example, sufficiently general indicia of switching and transport costs and rates can be constructed so that valid comparisons can be made. Thus,

there is no requirement that a geo-proximate or common BOC reference state be used.

IV. Response to Mr. Lundy

36. Mr. Lundy draws from the FCC's recent 271 Orders to support the adoption of the Kansas UNE rates for Arkansas. Generally, Mr. Lundy's review of the FCC's Orders is on point. As clearly stated in the Oklahoma and Massachusetts 271 Orders, UNE rates that are determined in an ad hoc fashion or adopted from another state can be TELRIC compliant so long as the UNE rates are consistent with cost differentials between states as determined by the HCPM. This reasoning is the foundation of the TELRIC Test, and following this logic allowed the FCC to conclude:

> a BOC's UNE rates will be entitled to a presumption of TELRIC compliance
> if they are adopted in whole from another state whose rates have been found
> to comply with TELRIC, and if costs are demonstrated to be at or above the
> costs in the state whose rates were adopted.[20]

Accordingly, as long as rate differentials are supportable by the cost differentials implied by the HCPM, UNE rates are TELRIC compliant for purposes of a 271 application.

37. However correct Mr. Lundy is in his analysis, the wholesale application of Kansas rates to Arkansas **does not** fit within the "presumption of TELRIC compliance" precedent. An important element of the "presumption of TELRIC compliance" precedent is the condition that it applies only "if costs are demonstrated to be at or above the costs in a state whose rates were adopted." As shown in Table 1, cost estimates from the HCPM do not indicate that the costs in Kansas are always less than in Arkansas; end-office switching costs are higher in Kansas than in Arkansas.[21] Thus, the application of the "presumption of TELRIC compliance" in this instance is somewhat suspect.

38. Therefore, in this application, SBC is not entitled to a presumption of TELRIC compliance for its end-office switching rates. As a result, the FCC must engage in a complete TELRIC Test analysis of this element. As discussed above, the

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[20]   FCC Massachusetts 271 Order, ¶ 22.

[21]   This particular case illustrates the problem with focusing solely on nominal rates without considering the impact of line count or minutes of use. While the rates are identical between Arkansas and Kansas, differences in usage cause the effective rates to differ.

costs of loops, end-office switching, and transport pass the TELRIC Test with Texas as the reference state.

39. In the final section of his affidavit, Mr. Lundy contends, "Kansas is the appropriate basis for comparison because it is more similar to Arkansas in network make-up (e.g., size and scope) than is Texas." Lundy Affidavit at 14. As noted in paragraphs 34-35 above, I disagree with Mr. Lundy's assertion. The purpose of a cost model is to produce valid estimates of costs by taking into account the variety of conditions (e.g., scale and scope) under which elements are provided. Thus, the similarity between two states in terms of characteristics should not be material to the selection of a reference state(s). If state characteristics were material, then it must true that the model fails in some way to accurately account for differences across states. If true, then the cost model is flawed and relying on its estimates to compare costs between any two geographic regions is suspect.

V. Response to Mr. Hughes

40. Unlike Mr. Lundy, Mr. Hughes does not rely on the principles set forth in previous 271 Orders in evaluating UNE rates between states. Rather, Mr. Hughes defends the Missouri rates by observing, "the Missouri price for the combination of elements known as the UNE-P is comparable to the price for the UNE-P in states where SBC has already obtained 271 relief and therefore within the range of reasonableness that a proper application of TELRIC would produce." Hughes Affidavit at 21.

41. Mr. Hughes' focus on prices obviously is misplaced. Comparing the price of UNEs without reference to the cost of UNEs is entirely at odds with TELRIC principles, the Commission's evaluation of UNE rates in 271 proceedings, and even SBC's own analysis provided by Mr. Lundy. A price-only comparison says nothing about the TELRIC zone of reasonableness. Only if the costs were identical in all the states would Mr. Hughes' point about the price for UNE-P have any relevance or validity. Even then, evaluating the UNE rates at an aggregate UNE-P level is inappropriate. At such an aggregate level, it is impossible to detect whether above-cost switching costs are subsidizing below costs loop rates.

42. As shown in Table 1, the costs across states are not identical. Thus, Mr. Hughes' observation that the UNE rate for UNE-P "is comparable" across states is stronger evidence that TELRIC principles have been violated than it is that

TELRIC principles have been applied. Mr. Hughes' argument is more of an indictment than a defense of Missouri's UNE rates.

43. As discussed above, despite SBC's 11th-hour attempts to reduce its Missouri rates, those rates still pose potential problems under the TELRIC Test.

VI. Benchmark Calculations for the Performance Plan

44. SBC has submitted a Performance Plan as part of its "public interest" showing for this application. However, SBC has filed a Performance Plan that contains significant and substantial misapplication of statistical principles that substantially undermine the operation of the plan. As a result, the Commission cannot rely on this plan as part of its "public interest" determination in this proceeding. To place any reliance on this plan would be arbitrary and would open the Commission to significant legal challenge.

45. Statistical analysis is an important element of the SBC Performance Plan. As a result, using valid statistical procedures in such a plan should be an important consideration in evaluating its reasonableness and effectiveness. Yet, included in the SBC Performance Plan is a calculation for benchmarks that approaches, in fact surpasses, the absurd. The treatment of benchmarks violates multiple laws of mathematics and statistics and the plan should be adjusted to eliminate the arbitrary adjustments to benchmarks.

46. The SBC Plan measures SBC's performance for different wholesale provisioning metrics in two ways – one by reference to "parity" with SBC retail performance, and another by reference to a particular "benchmark" (e.g., 95%). Each performance measurement is defined as either a "parity" measure or a "benchmark" measure.

47. Because all "parity" calculations compare two samples of data (service to SBC retail and service to CLECs), parity-based analysis lends itself to statistical testing. Statistical testing is not, unfortunately, perfect and has the potential for errors. For example, results for a particular month may show performance "out-of-parity", but that performance may have been the result not of discrimination but of random variation (i.e., a particularly odd sample was drawn from the population). Statisticians label the potential errors as "Type 1" and "Type 2" errors – that is, the possibility that a comparison would yield a "false-positive" or a "false-negative", respectively.

48. For the SBC plan, the statistical procedure that creates the the potential for Type 1/Type 2 errors is the "modified z-test." A "modified z-test" compares the

means (averages) of both sets of data (in this case, "performance for SBC retail" and "performance for CLECs"), and normalizes this difference in means so that it follows a standard normal distribution (i.e., a mean of zero and standard deviation of one). The properties of the standard normal distribution imply that only 5% of z-statistics will lie above 1.65 – the critical value used in the SBC plan. This 5% significance level establishes the Type I error rate of 5%. Type II depends on a number of factors that the researcher cannot directly control. The higher the z-statistic, the lower the Type I error rate and the less-likely the means difference can be explained by statistical error.

49. In the SBC Plan, a modified z-test is performed for parity measures where the average service level of SBC is compared to the average service level of the CLEC. The modified z-statistic, which is distributed standard normal (i.e., mean of zero, standard deviation of one), is computed with the formula:

$$z = \frac{X_I - X_C}{S_I \sqrt{1/N_I + 1/N_C}} \tag{2}$$

where X_I is the ILEC mean, X_C is the CLEC mean, S_I is the ILEC standard deviation, and N_I and N_C are the ILEC and CLEC sample sizes. Because the means difference is "normalized" by the denominator of Equation (2), the modified z-statistic can be compared to the standard normal table to evaluate the statistical significance of the means differences. Appealing to the standard normal distribution is permissible only because the means difference is *normalized* by dividing by the standard error of the means difference (the denominator of Equation 2).

50. However, in a twist of statistical logic, SBC's Performance Plan also proposes to use the modified z-test for benchmark measures. It is impossible for SBC to calculate a modified z-statistic for benchmark measures. As shown by Equation (2), five numbers are required to compute a modified z-score (the two means and sample sizes, and the standard deviation of the ILEC). For benchmark measures, however, only two of the five numbers are available – the CLEC mean and sample size. By definition, for benchmark measures there is no ILEC mean, no ILEC standard deviation, and no ILEC sample size. Thus, a modified z-score cannot be computed for benchmark measures – by definition.

51. Because it cannot use the mathematically-correct method of calculating z-scores because of the intrinsic nature of benchmark measures, SBC has generated a "statistical" procedure out-of-thin-air as a matter of convenience. Due to the

lack of the five required values to produce a z-statistic (i.e., X_I, S_I, and N_I), the "z-test" calculation for benchmark measures has been re-defined as

$$z' = \frac{B - X_C}{1} = B - X_C \tag{3}$$

where B is the benchmark and the standard error of the "means" difference is simply assumed to be 1 (a value that is theoretically impossible for percent benchmarks).[22] Because the means difference is not divided by its standard error, z' does not have a mean of zero or a standard deviation of one and, consequently, is not distributed according to the standard normal. To pretend that comparing z' to a z-statistic of 1.65 is statistical test is incompetence of the highest order. Arguing that the moon was made of cheese would not be any less ridiculous that claiming the treatment of benchmarks in the SBC Performance Plan is valid "statistical" procedure. Importantly, because Equation (3) is not a statistical test, then there cannot be Type I or Type II errors.

52. Dreaming up a z-statistic in this matter has two major impacts on the benchmark measures in the Plan. First, this statistical manipulation reduces every benchmark by 1.65 (or 0.0165 for percent measures). In addition, the results from these calculations (40-50% of all measures) are then used in the count for K-Table exclusions.[23] The K-Table is intended to credit SBC for Type I error – that is, the K-Table is designed to screen for instances in which non-parity results may be the cause of statistical error. Using the K-Table allows SBC to fail a certain number of measurements each month, and this number is a function of the number of "statistical" tests performed. For example, if 100 "statistical" tests are performed for a CLEC in a month, then SBC is allowed to exclude payments for 8 missed measures. [24] While benchmarks are not really statistical tests and are

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[22]   The SBC Performance Plan "assumes" the standard error of the means difference is 1.00. However, for means differences measures in percentages, the standard error cannot exceed 0.36 because the standard deviation is equal to $p(1 - p)$, where p is the mean, multiplied by the square root of summed inverse sample sizes. The first-term has a maximum value of 0.25 (at mean of 0.50), and the square root of the summed inverse sample sizes has a maximum value of 1.414 (i.e., SQRT(1/1 + 1/1). Thus, the maximum value of the standard error is 1.414(0.25) = 0.354. Even for a relatively small sample sizes, say 20 observations, the standard error for a p of 0.50 is 0.08.

[23]   According to Dysart AR Performance Standards Affidavit, Attachment C, about 40% of the measurements are benchmarks.

[24]   The K-Table grossly overstates the testing impact of Type I error. The expected number of Type I error for a significance level of 5% is 5 of 100 tests. This 5% failure rate, however, is valid only if every measure is in fact in parity. Because of the way the K-Table is constructed, if SBC pays

not subject to Type I or Type II errors, SBC places the results of these benchmark tests into the count for its K-Table exclusions – and increases substantially the potential number of tests performed in each month.

53. As a result, SBC is allowed many more "misses" for allegedly "statistical" reasons that it otherwise should. In the plan, only about 60 of the 100 tests are truly statistical. Using valid statistical methods and a K-Table would give SBC 5 statistical "misses" per month. Adding in the non-statistical benchmark calculations to this analysis gives SBC 8 statistical "misses" per month. This is a substantial and entirely unwarranted manipulation of the plan that permits a great level of discriminatory treatment.[25]

54. The inconvenience of not being able to compute a modified z-statistic for benchmarks is not a license to make-up "statistical" procedures that violate known statistical and mathematical laws.[26] Nor does the FCC's acceptance on three previous occasions of the SBC Plan's form a legitimate basis for it to continue to disregard basic statistical laws – laws it knows are being violated. When the FCC knows without question that something has been done wrong, it should do all it can to fix it. This 271 proceeding offers the FCC an excellent opportunity to purge the performance plans of a gross error.[27]

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on any measure then the assumption of 100% parity is rejected with a high degree of statistical confidence. The K-Table also ignores Type II error. While the K-Table is an invalid procedure, I believe taking on the K-Table in this proceeding is overly ambitious.

[25] The K-Table was adopted arbitrarily into the SBC Performance Plan from a CLEC plan. Notably, the CLEC plan did not use the K-Table in the same manner as the SBC Plan. The fact that the K-Table is misused in SBC Plan is proven by the fact the K-Table in Texas was incorrectly computed for the specific task it performs in the SBC Plan. Recognizing this fact, Qwest Communications recomputed the K-Table to correct this error (prior to dropping the K-Table from its performance plan). [George – explain this further]

[26] The benchmark calculation in the SBC Performance Plans violates the law of dimensional homogeneity. For example, the difference between two percentages is always less than 1.00, so the value could never exceed 1.65 (the critical z). The SBC Performance Plan resolves this problem by multiplying the means difference by 100.

[27] At the urging of CLECs, Qwest rejected the benchmark calculation and now treats benchmarks on a state-and-compare basis.

55. The FCC can fix the obvious errors in the SBC Plan by requiring SBC to modify its plan in the following manner:

- Evaluate benchmarks on a state-and compare basis (i.e., eliminate the bogus "statistical" testing of benchmarks)

- For K-Table purposes, exclude from the count of statistical tests performed each from all benchmark measures

These two changes will eliminate the most egregious of errors from the SBC Performance Plan, but will not eliminate all of the errors contained in the plan (e.g., the use of the K-Table in the SBC Plan is invalid on statistical grounds).

VII.   Conclusion

56. In this declaration, the UNE rates in Arkansas and Missouri are evaluated using the FCC's TELRIC Test. Because the rates at issue in both states have not been the subject of a complete TELRIC cost analysis, the Commission must utilize its TELRIC Test to determine whether these rates comply with FCC TELRIC pricing rules. The choice of reference state and the standard for a "*de minimis* difference" both are relevant to the determination of whether the rates pass or fail the TELRIC Test.

57. Also discussed is the treatment of benchmarks in the SBC Performance Plan. Without question, the procedure used for benchmarks in the SBC Plan is without merit. Given that statistical testing is an important component of the plan, the validity of the statistical procedures should be important to the determination of the reasonableness of the plan. The FCC to date has ignored the gross error contained in the SBC Plan, but five wrongs do not make a right. This proceeding offers the FCC an opportunity to purge this most glaring defect from the SBC Plan and any performance plan currently under review or development.

59. This concludes my declaration.

I declare, under penalty of perjury, that the information in this declaration is correct.

George S. Ford

Dated: September 10, 2001